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ABSTRACT

This booklet is a revision of an earlier document and contains a glossary of alphabetically arranged and commonly used environmental terms. For each term a brief definition is provided. (TW)

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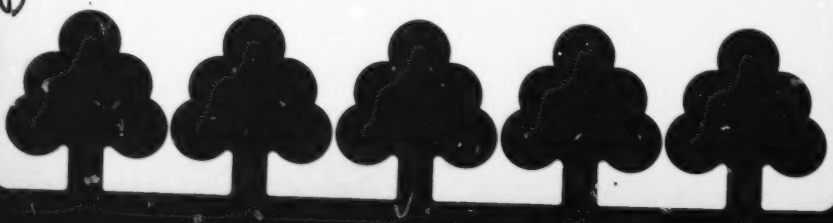

A

abatement: The reduction in degree or intensity of pollution.

absorption: The penetration of one substance into or through another.

accelerator: In radiation science, a device that speeds up charged particles such as electrons or protons.

acclimation: The physiological and behaviorial adjustments of an organism to changes in the environment.

acclimatization: The adaptation over several generations of a species to a marked change in the environment.

activated carbon: A highly adsorbent form of carbon used to remove odors and toxic substances from gaseous emissions. In advanced waste treatment, it is used to remove dissolved organic matter from waste water.

activated sludge: Sludge that has been aerated and subjected to bacterial action; used to speed breakdown of organic matter in raw sewage during secondary waste treatment.

acute toxicity: Any poisonous effect produced by a single short-term exposure, that results in severe biological harm or death.

adaptation: A change in structure or habit of an organism that produces better adjustment to its surroundings.

adhesion: Molecular attraction which holds the surfaces of two substances in contact, such as water and rock particles.

adsorption: The attachment of the molecules of a liquid or gaseous substance to the surface of a solid.

adulterants: Chemical impurities or substances that by law do not belong in a food, plant, animal, or pesticide formulation.

advanced waste water treatment: The tertiary stage of sewage treatment.

aeration: To circulate oxygen through a substance, as in waste water treatment where it aids in purification.

aerobic: Life or processes that depend on the presence of oxygen.

aerosol: A suspension of liquid or solid particles in a gas.

afterburner: An air pollution control device that removes undesirable organic gases by incineration.

agricultural pollution: The liquid and solid wastes from farming, including: runoff from pesticides, fertilizers, and feedlots; erosion and dust from plowing; animal manure and carcasses, crop residues, and debris.

air curtain: A method of containing oil spills, air bubbling through a perforated pipe causes an upward water flow that slows the spread of oil. It can also be used to stop fish from entering polluted water.

air mass: A widespread body of air that gains certain characteristics while set in one location. The characteristics change as it moves away.

air monitoring: See monitoring.

air pollution: The presence of contaminant substances in the air that do not disperse properly and interfere with human health.

air pollution episode: A period of abnormally high concentration of air pollutants, often due to low winds and temperature inversion that can cause illness and death.

air quality control region: An area designated by the Federal Government in which communities share a common air pollution problem, sometimes involving several States.

air quality criteria: The levels of pollution and lengths of exposure above which adverse effects may occur on health and welfare.

air quality standards: The level of pollutants prescribed by law that cannot be exceeded during a specified time in a defined area.

algae: Simple rootless plants that grow in bodies of water in relative proportion to the amounts of nutrients available. Algal blooms, or sudden growth spurts can affect water quality adversely.

alpha particle: The least penetrating type of radiation, usually not harmful to life.

ambient air: Any unconfined portion of the atmosphere: open air.

anadromous: Fish that swim upriver to spawn like salmon.

anaerobic: Life or processes that can occur without free oxygen.

anticoagulant: A chemical that interferes with blood clotting.

anti-degradation clause: Part of air quality and water quality laws that prohibits deterioration where pollution levels are within the legal limit.

aquifer: An underground bed or layer of earth, gravel, or porous stone that contains water.

area source: In air pollution, any small individual fuel combustion source, including vehicles. A more precise legal definition is available in Federal regulations.

asbestos: A mineral fiber that can pollute air or water and cause cancer if inhaled or ingested.

A-scale sound level: A measurement of sound approximating the sensitivity of the human ear, used to note the intensity or annoyance of sounds.

assimilation: The ability of a body of water to purify itself of pollutants.

atmosphere: The body of air surrounding the Earth.

atomic pile: A nuclear reactor.

attractant: A chemical or agent that lures insects or other pests by stimulating their sense of smell.

attrition: Wearing or grinding down a substance by friction. A contributing factor in air pollution, as with dust.

audiometer: An instrument that measures hearing sensitivity.

autotrophic: An organism that produces food from inorganic substances.

B

backfill: The material used to refill an excavation, or the process of doing so.

background level: In air pollution, the level of pollutants present in ambient air from natural sources.

bacteria: Single-celled microorganisms that lack chlorophyll. Some cause diseases, others aid in pollution control by breaking down organic matter in air and water.

baffle: A deflector that changes the direction of flow or velocity of water, sewage, or particulate matter. Also used to deaden sound.

baghouse: An air pollution abatement device used to trap particulates by filtering gas streams through large fabric bags usually made of glass fibers.

baling: Compacting solid waste into blocks to reduce volume.

ballistic separator: A machine that sorts organic from inorganic matter for composting.

band application: In pesticides, the spreading of chemicals over or next to each row of plants in a field.

bar screen: In waste water treatment, a device that removes large solids.

basal application: In pesticides, the spreading of a chemical on stems or trunks just above the soil line.

benthic region: The bottom layer of a body of water.

benthos: The plants and animals that inhabit the bottom of a water body.

beryllium: A metal that can be hazardous to human health when inhaled. It is discharged by machine shops, ceramic and propellant plants, and foundries.

beta particle: An elementary particle emitted by radioactive decay that may cause skin burns. It is halted by a thin sheet of metal.

bioassay: Using living organisms to measure the effect of a substance, factor, or condition.

biochemical oxygen demand (BOD): The dissolved oxygen required to decompose organic matter in water. It is a measure of pollution since heavy waste loads have a high demand for oxygen.

biodegradable: Any substance that decomposes quickly through the action of microorganisms.

biological control: Using means other than chemicals to control pests, such as predatory organisms, sterilization, or inhibiting hormones.

biological magnification: The concentration of certain substances up a food chain. A very important mechanism in concentrating pesticides and heavy metals in organisms such as fish.

biological oxidation: The way that bacteria and microorganisms feed on and decompose complex organic materials. Used in self-purification of water bodies and activated sludge wastewater treatment.

biomass: The amount of living matter in a given unit of the environment.

biomonitoring: The use of living organisms to test water quality at a discharge site or downstream.

biosphere: The portion of Earth and its atmosphere that can support life.

biostabilizer: A machine that converts solid waste into compost by grinding and aeration.

biota: All living organisms that exist in an area.

bloom: A proliferation of algae and/or higher aquatic plants in a body of water, often related to pollution.

BOD_5: The amount of dissolved oxygen consumed in 5 days by biological processes breaking down organic matter in an effluent.

bog: Wet, spongy land usually poorly drained, highly acid and rich in plant residue, the result of lake eutrophication.

boom: A floating device used to contain oil on a body of water.

botanical pesticide: A plant-produced chemical used to control pests; for example nicotine or strychnine.

brackish water: A mixture of fresh and salt water.

breeder: A nuclear reactor that produces more fuel than it consumes.

broadcast application: In pesticides, to spread a chemical over an entire area.

buffer strips: Strips of grass or other erosion-resisting vegetation between or below cultivated strips or fields.

burial ground (graveyard): A disposal site for unwanted radioactive materials that uses earth or water for a shield.

C

cadmium: A heavy metal element that accumulates in the environment.

carbon dioxide (CO_2): A colorless, odorless nonpoisonous gas normally part of ambient air, a result of fossil fuel combustion.

carbon monoxide (CO): A colorless, odorless, poisonous gas produced by incomplete fossil fuel combustion.

carcenogenic: Cancer-producing.

carrying capacity: 1. In recreation, the amount of use a recreation area can sustain without deterioration of its quality. 2. In wildlife, the maximum number of animals an area can support during a given period of the year.

catalytic converter: An air pollution abatement device that removes organic contaminants by oxidizing them into carbon dioxide and water.

caustic soda: Sodium hydroxide (NaOH), a strong alkaline substance used as the cleaning agent in some detergents.

cells: In solid waste disposal, holes where waste is dumped, compacted and covered with layers of dirt daily.

centrifugal collector: A mechanical system using centrifugal force to remove aerosols from a gas stream or to de-water sludge.

cfs: Cubic feet per second, a measure of the amount of water passing a given point.

channelization: To straighten and deepen streams so water will move faster, a flood reduction or marsh drainage tactic that can interfere with waste assimilation capacity and disturb fish habitat.

chemical oxygen demand (COD): A measure of the oxygen required to oxidize all compounds in water, organic and inorganic.

chemosterilant: A chemical that controls pests by preventing reproduction.

chilling effect: The lowering of the Earth's temperature because of increased particles in the air blocking the Sun's rays.

chlorinated hydrocarbons: A class of persistent, broad-spectrum insecticides, notably DDT, that linger in the environment and accumulate in the food chain. Other examples are aldrin, dieldrin, heptachlor, chlordane, lindane, endrin, mirex, benzene, hexachloride, and toxaphene.

chlorination: The application of chlorine to drinking water, sewage, or industrial waste to disinfect or to oxidize undesirable compounds.

chlorinator: A device that adds chlorine to water in gas or liquid form.

chlorine-contact chamber: That part of a waste treatment plant where effluent is disinfected by chlorine before being discharged.

chlorosis: Discoloration of normally green plant parts that can be caused by disease, lack of nutrients, or various air pollutants.

chromium: see heavy metals

chronic: Long-lasting or frequently recurring, as a disease.

clarification: Clearing action that occurs during waste water treatment when solids settle out, often aided by centrifugal action and chemically induced coagulation.

clarifier: A settling tank where solids are mechanically removed from waste water.

clear cut: A forest management technique that involves harvesting all the trees in one area at one time. Under certain soil and slope conditions it can contribute sediment to water pollution.

coagulation: A clumping of particles in waste water to settle out impurities, often induced by chemicals such as lime or alum.

coastal zone: Ocean waters and adjacent lands that exert an influence on the uses of the sea and its ecology.

coefficient of haze (COH): A measurement of visibility interference in the atmosphere.

coffin: A thick-walled container (usually lead) used for transporting radioactive materials.

coliform index: A rating of the purity of water based on a count of fecal bacteria.

coliform organism: Organisms found in the intestinal tract of humans and animals, their presence in water indicates pollution and potentially dangerous bacterial contamination.

combined sewers: A system that carries both sewage and storm water runoff. In dry weather all flow goes to the waste treatment plant. During a storm only part of the flow is intercepted due to overloading. The remaining mixture of sewage and storm water overflows untreated into the receiving stream.

combustion: Burning, or a rapid oxidation accompanied by release of energy in the form of heat and light, a basic cause of air pollution.

comminution: Mechanical shredding or pulverizing of waste, used in solid waste management and waste water treatment.

comminutor: A machine that grinds solids to make waste treatment easier.

compaction: Reduction of the bulk of solid waste by rolling and tamping.

compost: Relatively stable decomposed organic material.

composting: A controlled process of organic breakdown of matter. In mechanical composting the materials are constantly mixed and aerated by a machine. The ventilated cell method mixes and aerates materials by dropping them through a vertical series of aerated chambers. Using windrows, compost is placed in piles out in the open air and mixed or turned periodically.

conservation: The protection, improvement, and use of natural resources according to principles that will assure their highest economic or social benefits.

contact pesticide: A chemical that kills pests when it touches them, rather than by being eaten (stomach poison).

contrails: Long narrow clouds caused when high-flying jets disturb the atmosphere.

contour plowing: Farming methods that break ground following the shape of the land in a way that discourages erosion.

coolant: A liquid or gas used to reduce the heat generated by power production in nuclear reactors or electric generators.

cooling tower: A device that aids in heat removal from water used as a coolant in electric power generating plants.

core: The uranium-containing heart of a nuclear reactor, where energy is released.

cover material: Soil used to cover compacted solid waste in a sanitary landfill.

cover: Vegetation or other material providing protection.

criteria: The standards EPA has established for certain pollutants, which not only limit the concentration, but also set a limit to the number of violations per year.

cultural eutrophication: Increasing the rate at which water bodies "die" by pollution from human activities.

curie: A measure of radioactivity.

cutie-pie: An instrument used to measure radiation levels.

cyclone collector: A device that uses centrifugal force to pull large particles from polluted air.

D

DDT: The first chlorinated hydrocarbon insecticide (chemical name: 1, 1, 1-trichlorous-2, 2-bis (p-chloriphenyl)-ethane.) It has a half-life of 15 years and can collect in fatty tissues of certain animals. EPA banned registration and interstate sale of DDT for virtually all but emergency uses in the U.S. in 1972 because of its persistence in the environment and accumulation in the food chain.

decibel (dB): A unit of sound measurement.

decomposition: The breakdown of matter by bacteria. It changes the chemical make-up and physical appearance of materials.

dermal toxicity: The ability of a pesticide or toxic chemical to poison people or animals by touching the skin.

depletion curve (hydraulics): A graphical representation of water depletion from storage-stream channels, surface soil, and groundwater. A depletion curve can be drawn for base flow, direct runoff, or total flow.

DES (Diethylstilbestrol): A synthetic estrogen used as a growth stimulant in food animals. Residues in meat are thought to be carcinogenic.

desalinization: Removing salt from ocean or brackish water.

desiccant: A chemical agent that dries out plants or insects causing death.

desulfurization: Removal of sulfur from fossil fuels to cut pollution.

detergent: Synthetic washing agent that helps water to remove dirt and oil. Most contain large amounts of phosphorus compounds which may kill useful bacteria and encourage algae growth in the receiving water.

diatomaceous earth (diatomite): A chalk-like material used to filter out solid wastes in waste water treatment plants, also found in powdered pesticides.

diffused air: A type of aeration that forces oxygen into sewage by pumping air through perforated pipes inside a holding tank.

digester: In wastewater treatment a closed tank, sometimes heated to 95° F, where sludge is subjected to intensified bacterial action.

digestion: The biochemical decomposition of organic matter. Digestion of sewage sludge occurs in tanks where it breaks down into gas, liquid, and mineral matter.

dilution ratio: The relationship between the volume of water in a stream and the volume of incoming waste. It can affect the ability of the stream to assimilate waste.

disinfection: A chemical or physical process that kills organisms that cause infectious disease. Chlorine is often used to disinfect sewage treatment effluent.

dispersant: A chemical agent used to break up concentrations of organic material such as spilled oil.

dissolved oxygen (DO): A measure of the amount of oxygen available for biochemical activity in a given amount of water. Adequate levels of DO are needed to support aquatic life. Low dissolved oxygen concentrations can result from inadequate waste treatment.

dissolved solids: The total of disintegrated organic and inorganic material contained in water. Excesses can make water unfit to drink or use in industrial processes.

distillation: Purifying liquids through boiling. The steam condenses to pure water and pollutants remain in a concentrated residue.

dose: In radiology, the quantity of energy or radiation absorbed.

dosimeter: An instrument that measures exposure to radiation.

dredging: To remove earth from the bottom of water bodies using a scooping machine. This disturbs the ecosystem and causes silting that can kill aquatic life.

dry limestone process: An air pollution control method that uses limestone to absorb the sulfur oxides in furnaces and stack gases.

dump: A site used to dispose of solid wastes without environmental controls.

dust: Fine grain particles light enough to be suspended in air.

dustfall jar: An open container used to collect large particles from the air for measurement and analysis.

dystrophic lakes: Shallow bodies of water that contain much humus and organic matter. They contain many plants but few fish and are almost eutrophic.

E

ecological impact: The total effect of an environmental change, natural or man-made, on the community of living things.

ecology: The relationships of living things to one another and to their environment, or the study of such relationships.

economic poisons: Chemicals used to control pests and to defoliate cash crops such as cotton.

ecosphere: See biosphere.

ecosystem: The interacting system of a biological community and its nonliving surroundings.

effluent: Waste material discharged into the environment, it can be treated or untreated. Generally refers to water pollution.

electrodialysis: A process that uses electrical current applied to permeable membranes to remove minerals from water. Often used to desalinize salt or brackish water.

electrostatic precipitator: An air pollution control device that imparts an electrical charge to particles in a gas stream causing them to collect on an electrode.

emergency episode: See air pollution episode.

emission: Like effluent but used in regard to air pollution.

emission factor: The relationship between the amount of pollution produced and the amount of raw material processed. For example an emission factor for a blast furnace making iron would be the number of pounds of particulates per ton of raw materials.

emission inventory: A listing, by source, of the amounts of air pollutants discharged into the atmosphere of a community daily. It is used to establish emission standards.

emission standard: The maximum amount of discharge legally allowed from a single source, mobile or stationary.

enrichment: Sewage effluent or agricultural runoff adding nutrients (nitrogen, phosphorus, carbon compounds) to a water body, greatly increasing the growth potential for algae and aquatic plants.

environment: The sum of all external conditions affecting the life, development and survival of an organism.

environmental impact statement: A document required of Federal agencies by the National Environmental Policy Act for major projects or legislative proposals. They are used in making decisions about the positive and negative effects of the undertaking, and list alternatives.

epidemiology: The study of diseases as they affect populations.

episode (pollution): An air pollution incident in a given area caused by a concentration of atmospheric pollution reacting with meteorological conditions that may result in a significant increase in illnesses or deaths.

erosion: The wearing away of land surface by wind or water. Erosion occurs naturally from weather or run-off but can be intensified by land-clearing practices.

estuaries: Areas where fresh water meets salt water (bays, mouths of rivers, salt marshes, lagoons). These brackish water ecosystems shelter and feed marine life, birds, and wildlife.

eutrophication: The slow aging process of a lake evolving into a marsh and eventually disappearing. During eutrophication the lake is choked by abundant plant life. Human activities that add nutrients to a water body can speed up this action.

eutrophic lakes: Shallow murky water bodies that have lots of algae and little oxygen.

evaporation ponds: Areas where sewage sludge is dumped and allowed to dry out.

F

fabric filter: A cloth device that catches dust and particles from industrial emissions.

fecal coliform bacteria: A group of organisms found in the intestinal tracts of people and animals. Their presence in water indicates pollution and possible dangerous bacterial contamination.

feedlot: A relatively small, confined area for raising cattle that results in lower costs but may concentrate large amounts of animal wastes. The soil cannot absorb such large amounts of excrement, and runoff from feedlots pollutes nearby waterways with nutrients.

fen: Low-lying land partly covered with water.

filling: Depositing dirt and mud, often raised by dredging, into marshy areas to create more land for real estate development. It can destroy the marsh ecology.

film badge: A piece of masked photographic film worn by nuclear workers to monitor their exposure to radiation. Nuclear radiation darkens the film.

filtration: Removing particles of solid materials from water, usually by passing it through sand.

floc: A clump of solids formed in sewage by biological or chemical action.

flocculation: Separation of suspended solids during waste water treatment by chemical creation of clumps of flocs.

flowmeter: A gauge that shows the speed of waste water moving through a treatment plant.

flue gas: The air coming out of a chimney after combustion. It can include nitrogen oxides, carbon oxides, water vapor, sulfur oxide, particles, and many chemical pollutants.

fluorides: Gaseous, solid, or dissolved compounds containing fluorine that result from industrial processes.

fluorocarbons: A gas used as a propellant in aerosols, thought to be modifying the ozone layer in the stratosphere thereby allowing more harmful solar radiation to reach the Earth's surface.

flume: A natural or man-made channel that diverts water.

fly ash: Noncombustible particles carried by flue gas.

fog: Suspended liquid particles formed by condensation of vapor.

fogging: Applying a pesticide by rapidly heating the liquid chemical so that it forms very fine droplets that resemble smoke. It is used to destroy mosquitoes and blackflies.

food waste: Discarded animal and vegetable matter, also called garbage.

fossil fuels: Combustibles derived from the remains of ancient plants and animals, like coal, oil, and natural gas.

fume: Tiny particles trapped by vapor in a gas stream.

fumigant: A pesticide that is vaporized to kill pests; often used in buildings or greenhouses.

fungi: Tiny plants that lack chlorophyll. Some cause disease, others stabilize sewage and break down solid wastes for compost.

G

game fish: Species like trout, salmon, bass, etc. caught for sport. They show more sensitivity to environmental changes than "rough" fish.

gamma ray: The most penetrating waves of radiant nuclear energy. They can be stopped by dense materials like lead.

garbage: See food waste.

garbage grinding: Use of a household disposal to crush food waste and wash it into the sewer system.

gasification: Conversion of a solid material, such as coal, into a gas for use as fuel.

Geiger counter: An electrical device that detects the presence of radioactivity.

generator: A device that converts mechanical energy into electrical energy.

germicide: Any compound that kills disease-carrying microorganisms. These must be registered as pesticides with EPA.

grain: A unit of weight equal to 65 milligrams or 2/1,000 of an ounce.

grain loading: The rate at which particles are emitted from a pollution source—measurement is made by the numbers of grains per cubic foot of gas emitted.

green belts: Buffer zones created by restricting development from certain land areas.

greenhouse effect: The warming of our atmosphere caused by build-up of carbon dioxide, which allows light from the Sun's rays to heat the Earth but prevents loss of the heat.

ground cover: Plants grown to keep soil from eroding.

groundwater: The supply of fresh water under the Earth's surface that forms a natural reservoir.

H

habitat: The sum of environmental conditions in a specific place that is occupied by an organism, population, or community.

half-life: The time taken by certain materials to lose half their strength. For example the half life of DDT is 15 years; of radium 1,580 years.

hammermill: A high-speed machine that uses hammers and cutters to crush, grind, chip, or shred solid wastes.

hard water: Alkaline water containing dissolved mineral salts, that interfere with some industrial processes and prevent soap from lathering.

hazardous air pollutant: Substances covered by Air Quality Criteria, which may cause or contribute to illness or death; asbestos, beryllium, mercury, and vinyl chloride.

hazardous waste: Waste materials which by their nature are inherently dangerous to handle or dispose of, such as old explosives, radioactive materials, some chemicals, and some biological wastes; usually produced in industrial operations.

heat island effect: A haze dome created in cities by pollutants combining with the heat trapped in the spaces between tall buildings. This haze prevents natural cooling of air, and in the absence of strong winds can hold high concentrations of pollutants in one place.

heating season: The coldest months of the year, when pollution increases in some areas because people burn fossil fuels to keep warm.

heavy metals: Metallic elements like mercury, chromium, cadmium, arsenic, and lead, with high molecular weights. They can damage living things at low concentrations and tend to accumulate in the food chain.

herbicide: A chemical that controls or destroys undesirable plants.

herbivore: An animal that feeds on plants.

heterotrophic organism: Humans and animals that cannot make food from inorganic chemicals.

high density polyethylene: A material used to make plastic bottles that produces toxic fumes when burned.

hi-volume sampler: A device used to measure and analyze suspended particulate pollution.

holding pond: A pond or reservoir usually made of earth built to store polluted runoff.

hot: Slang for radioactive material.

humus: Decomposed organic material.

hydrocarbons: Compounds found in fossil fuels, that contain carbon and hydrogen and may be carcinogenic.

hydrogen sulfide (H_2S): The gas emitted during organic decomposition that smells like rotten eggs. It is also a byproduct of oil refining and burning and can cause illness in heavy concentrations.

hydrology: The science dealing with the properties, distribution, and circulation of water.

I

impedance: The rate at which a substance absorbs and transmits sound.

implementation plan: An outline of steps needed to meet environmental quality standards by a set time.

impoundment: A body of water confined by a dam, dike, floodgate, or other barrier.

incineration: Disposal of solid, liquid, or gaseous wastes by burning.

incinerator: A controlled chamber where waste substances are burned.

indicator: In biology, an organism, species, or community that shows the presence of certain environmental conditions.

inert gas: A vapor that doesn't react with other substances under ordinary conditions.

inertial separator: A device that uses centrifugal force to separate waste particles.

infiltration: The action of water moving through small openings in the earth as it seeps down into the groundwater.

inoculum: Bacteria placed in compost to start biological action.

integrated pest management: Combining the best of all useful techniques—biological, chemical, cultural, physical, and mechanical—into a custom-made pest control system.

interceptor sewers: The collection system that connects main and trunk sewers with the wastewater treatment plant. In a combined sewer system interceptor sewers allow some untreated wastes to flow directly into the receiving streams so the plant won't be overloaded.

interstate carrier water supply: A source of water for planes, buses, trains, and ships operating in more than one State. These sources are regulated by the Federal Government.

interstate waters: Defined by law as: 1) waters that flow across or form a part of State or international boundaries 2) the Great Lakes and 3) coastal waters.

inversion: An atmospheric condition caused by a layer of warm air preventing the rise of cool air trapped beneath it. This holds down pollutants that might otherwise be dispersed, and can cause an air pollution episode.

ionization chamber: A device that detects ionizing radiation.

isotope: A variation of an element that has the same atomic number but a different weight because of its neutrons. Isotopes of an element may have different radioactive behavior.

J K L

lagoon: A shallow pond where sunlight, bacterial action, and oxygen work to purify waste water.

lateral sewers: Pipes running underneath city streets that collect sewage.

LC_{50}: Median lethal concentration, a standard measure of toxicity. It tells how much of a substance is needed to kill half of a group of experimental organisms.

leachate: Materials that pollute water as it seeps through solid waste.

leaching: The process by which nutrient chemicals or contaminants are dissolved and carried away by water, or are moved into a lower layer of soil.

lead: A heavy metal that may be hazardous to health if breathed or swallowed.

life cycle: The stages an organism passes through during its existence.

lift: In a sanitary landfill, a compacted layer of solid waste and the top layer of cover material.

liquefaction: Changing a solid into a liquid form.

limnology: The study of the physical, chemical, meteorological, and biological aspects of fresh water.

limiting factor: A condition whose absence, or excessive concentration, exerts some restraining influence upon a population through incompatibility with species requirements or tolerance.

M

marsh: Wet, soft, low-lying land that provides a niche for many plants and animals. It can be destroyed by dredging and filling.

masking: Blocking out one sight, sound, or smell with another.

mechanical turbulence: The erratic movement of air caused by local obstructions such as buildings.

mercury: A heavy metal, highly toxic if breathed or swallowed. It can accumulate in the environment.

methane: A colorless, nonpoisonous, flammable gas emitted by marshes and dumps undergoing anaerobic decomposition.

mgd: Millions of gallons per day. Mgd is a measurement of water flow.

microbes: Tiny plants and animals, some that cause disease are found in sewage.

mist: Liquid particles measuring 500 to 40 microns, that are found by condensation of vapor. By comparison, fog particles are smaller than 40 microns.

mixed liquor: Activated sludge and water containing organic matter being treated in an aeration tank.

mobile source: A moving producer of air pollution, mainly forms of transportation—cars, motorcycles, planes.

monitoring: Periodic or continuous sampling to determine the level of pollution or radioactivity.

muck soils: Earth made from decaying plant materials.

mulch: A layer of material (wood chips, straw, leaves) placed around plants to hold moisture, prevent weed growth, and enrich soil.

multiple use: Harmonious use of land for more than one purpose; i.e., grazing of livestock, wildlife production, recreation, watershed and timber production. Not necessarily the combination of uses that will yield the highest economic return or greatest unit output.

mutagen: Any substance that causes changes in the genetic structure in subsequent generations.

N

natural gas: A natural fuel containing methane and hydrocarbons that occurs in certain geologic formations.

natural selection: The process of survival of the fittest, by which organisms that adapt to their environment survive and those that don't disappear.

necrosis: Death of cells that can discolor areas on a plant or kill the entire plant.

nitric oxide (NO): A gas formed by combustion under high temperature and high pressure in an internal combustion engine. It changes into nitrogen dioxide in the ambient air and contributes to photochemical smog.

nitrogen dioxide (NO_2): The result of nitric oxide combining with oxygen in the atmosphere; a major component of photochemical smog.

nitrogenous wastes: Animal or plant residues that contain large amounts of nitrogen.

NO: A notation meaning oxides of nitrogen. See nitric oxide.

nonpoint source: A contributing factor to water pollution that can't be traced to a specific spot; like agricultural fertilizer runoff, sediment from construction.

noise: Any undesired sound.

NTA: Nitrilotriacetic acid, a compound proposed for use to replace phosphates in detergents.

nuclear power plant: A device that converts atomic energy into usable power; heat produced by a reactor makes steam to drive electricity-generating turbines.

nutrients: Elements or compounds essential to growth and development of living things; carbon, oxygen, nitrogen, potassium and phosphorus.

O

off-road vehicles: Forms of motorized transportation that do not require prepared surfaces—they can be used to reach remote areas.

oil spill: Accidental discharge into bodies of water, can be controlled by chemical dispersion, combustion, mechanical containment, and absorption.

oil "fingerprinting": A method that identifies oil spills so they can be traced back to their sources.

oligotrophic lakes: Deep clear lakes with low nutrient supplies. They contain little organic matter and have a high dissolved oxygen level.

oncogenic: A substance that causes tumors, whether benign or malignant.

opacity: The amount of light obscured by an object or substance; a window has zero opacity; a wall 100% opacity.

open burning: Uncontrolled fires in an open dump.

open dump: see dump.

open space: A relatively undeveloped green or wooded area provided usually within an urban development to minimize feelings of congested living.

organic: Referring to or derived from living organisms. In chemistry, any compound containing carbon.

organism: Any living thing.

organophosphates: Pesticide chemicals that contain phosphorus, used to control insects. They are short-lived but some can be toxic when first applied.

osmosis: The tendency of a fluid to pass through a permeable membrane, as the wall of a living cell, into a less concentrated solution, so as to equalize concentrations on both sides of the membrane.

outfall: The place where an effluent is discharged into receiving waters.

overfire air: Air forced into the top of an incinerator to fan the flame.

overturn: The period of mixing (turnover), by top to bottom circulation, of previously stratified water masses. This phenomenon may occur in spring and/or fall; the result is a uniformity of physical and chemical properties of the water at all depths.

oxidant: A substance containing oxygen that reacts chemically in air to produce a new substance; primary source of photochemical smog.

oxidation: Oxygen combining with other elements.

oxidation pond: A holding area where organic wastes are broken down by aerobic bacteria.

ozone (O_3): A pungent, colorless, toxic gas that contributes to photochemical smog.

P

packed tower: A pollution control device that forces dirty air through a tower packed with crushed rock or wood chips while liquid is sprayed over the packing material. The pollutants in the air stream either dissolve or chemically react with the liquid.

pandemic: Widespread throughout an area.

PAN: (Peroxyacetyl nitrate) a pollutant created by the action of sunlight on hydrocarbons and nitrogen oxides in the air. An ingredient of smog.

particulates: Fine liquid or solid particles such as dust, smoke, mist, fumes, or smog, found in the air or emissions.

particulate loading: The introduction of particulates into ambient air.

pathogenic: Capable of causing disease.

PCB's (Polychlorinated biphenyls): A group of toxic, persistent chemicals used in transformers and capacitors. Further sale or new use is banned in 1979 by law.

percolation: Downward flow or filtering of water through pores or spaces in rock or soil.

persistent pesticides: Pesticides that do not break down chemically and remain in the environment after a growing season.

pesticide: Any substance used to control pests ranging from rats, weeds, and insects to algae and fungi. Pesticides can accumulate in the food chain and can contaminate the environment if misused.

pesticide tolerance: The amount of pesticide residue allowed by law to remain in or on a harvested crop. By using various safety factors, EPA sets these levels well below the point where the chemicals might be harmful to consumers.

pH: A measure of the acidity or alkalinity of a material, liquid or solid. pH is represented on a scale of 0 to 14 with 7 being a neutral state, 0 most acid, and 14 most alkaline.

phenols: Organic compounds that are byproducts of petroleum refining, tanning, textile, dye, and resin manufacture. Low concentrations can cause taste and odor problems in water, higher concentrations can kill aquatic life.

phosphates: Chemical compounds containing phosphorus.

phosphorus: An essential food element that can contribute to the eutrophication of water bodies.

photochemical oxidants: Air pollutants formed by the action of sunlight on oxides of nitrogen and hydrocarbons.

photochemical smog: Air pollution caused by not one pollutant but by chemical reactions of various pollutants emitted from different sources.

photosynthesis: The manufacture by plants of carbohydrates and oxygen from carbon dioxide and water in the presence of chlorophyll, using sunlight as an energy source.

phytotoxic: Something that harms plants.

pig: A container, usually lead, used to ship or store radioactive materials.

pile: A nuclear reactor.

plankton: Tiny plants and animals that live in water.

plastics: Non-metallic compounds that result from a chemical reaction, and are molded or formed into rigid or pliable structural material.

plume: Visible emission from a flue or chimney.

point source: A stationary location where pollutants are discharged, usually from an industry.

pollen: A fine dust produced by plants; a natural or background air pollutant.

pollutant: Any introduced substance that adversely affects the usefulness of a resource.

pollution: The presence of matter or energy whose nature, location, or quantity produces undesired environmental effects.

polyectrolytes: Synthetic chemicals that help solids to clump during sewage treatment.

polyvinyl chloride: A plastic that releases hydrochloric acid when burned.

potable water: Appetizing water that is safe for drinking and use in cooking.

ppm: Parts per million; a way of expressing tiny concentrations. In air ppm is usually a volume/volume ratio; in water, a weight/volume ratio.

precipitate: A solid that separates from a solution because of some chemical or physical change.

precipitators: Air pollution control devices that collect particles from an emission by mechanical or electrical means.

pretreatment: Processes used to reduce the amount of pollution in water before it enters the sewers or the treatment plant.

primary treatment: The first stage of waste water treatment; removal of floating debris and solids by screening and sedimentation.

process weight: The total weight of all materials, including fuel, used in a manufacturing process. It is used to calculate the allowable rate of emission of pollutant matter from the process.

pulverization: The crushing or grinding of materials into small pieces.

pumping station: A machine installed on sewers to pull the sewage uphill. In most sewer systems waste water flows by gravity to the treatment plant.

putrescible: A substance that can rot quickly enough to cause odors and attract flies.

pyrolysis: Chemical decomposition by extreme heat.

Q

quench tank: A water-filled tank used to cool incinerator residues, or hot materials during industrial processes.

R

rad: A unit of measurement of any kind of radiation absorbed by humans.

radiation: The emission of particles or rays by the nucleus of an atom.

radiation standards: Regulations that govern exposure to permissible concentrations of and transportation of radioactive materials.

radioactive: Substances that emit rays either naturally or as a result of scientific manipulation.

radiobiology: The study of the principles, mechanisms, and effects of radiation on living things.

radioecology: The study of the effects of radiation on plants and animals in natural communities.

radioisotopes: Radioactive forms of chemical compounds; such as cobalt-60, used in the treatment of diseases.

rasp: A machine that grinds waste into a manageable material and helps prevent odor.

raw sewage: Untreated waste water.

receiving waters: Any body of water where untreated wastes are dumped.

recharge: Process by which water is added to the zone of saturation, as recharge of an aquifer.

recycling: Converting solid waste into new products by using the resources contained in discarded materials.

red tide: A proliferation of ocean plankton that may kill large numbers of fish. This natural phenomenon may be stimulated by the addition of nutrients.

refuge, wildlife: An area designated for the protection of wild animals, within which hunting and fishing is either prohibited or strictly controlled.

refuse: See solid waste.

refuse reclamation: Conversion of solid waste into useful products, e.g. composting organic wastes to make a soil conditioner.

rem: A measurement of radiation by biological effect on human tissue. (Acronym for roentgen equivalent man.)

rep: A measurement of radiation by energy development in human tissue. (Acronym for roentgen equivalent physical.)

reservoir: Any holding area, natural or artificial, used to store, regulate, or control water.

resource recovery: The process of obtaining matter or energy from materials formerly discarded e.g. solid waste, wood chips.

reverberation: The echoes of a sound that persist in an enclosed space after the sound source has stopped.

reverse osmosis: An advanced method of waste treatment that uses a semi-permeable membrane to separate water from pollutants.

Ringelmann chart: A series of shaded illustrations used to measure the opacity of air pollution emissions. The chart ranges from light grey (number 1) through black (number 5) and is used to set and enforce emission standards.

riparian rights: Entitlement of a land owner to the water on or bordering his property, including the right to prevent diversion or misuse of it upstream.

river basin: The land area drained by a river and its tributaries.

rodenticide: A chemical or agent used to destroy rats or other rodent pests, or to prevent them from damaging food, crops, etc.

rough fish: Those species not prized for game purposes or for eating; gar, suckers, etc. Most are more tolerant of changing environmental conditions than game species.

rubbish: Solid waste, excluding food waste and ashes, from homes, institutions, and workplaces.

runoff: Water from rain, snow melt, or irrigation that flows over the ground surface and returns to streams. It can collect pollutants from air or land and carry them to the receiving waters.

S

salinity: The degree of salt in water.

salt water intrusion: The invasion of fresh surface or ground water by salt water. If the salt water comes from the ocean it's called sea water intrusion.

salvage: The utilization of waste materials.

sanitation: Control of physical factors in the human environment that can harm development, health, or survival.

sanitary landfill, landfilling: Protecting the environment when disposing of solid waste. Waste is spread in thin layers, compacted by heavy machinery and covered with soil daily.

sanitary sewers: Underground pipes that carry only domestic or commercial waste, not storm-water.

scrap: Materials discarded from manufacturing operations that may be suitable for reprocessing.

screening: Use of racks of screens to remove coarse floating and suspended solids from sewage.

scrubber: An air pollution control device that uses a spray of water to trap pollutants and cool emissions.

secondary treatment: Biochemical treatment of wastewater after the primary stage, using bacteria to consume the organic wastes. Use of trickling filters or the activated sludge process, removes floating and settleable solids and about 90 percent of oxygen demanding substances and suspended solids. Disinfection with chlorine is the final stage of secondary treatment.

sedimentation: Letting solids settle out of waste water by gravity during waste water treatment.

sedimentation tanks: Holding areas for waste water where floating wastes are skimmed off and settled solids are pumped out for disposal.

seepage: Water that flows through the soil.

selective pesticide: A chemical designed to affect only certain types of pests leaving other plants and animals unharmed.

senescence: The aging process. It can refer to lakes in advanced stages of eutrophication.

septic tank: An enclosure that stores and (processes) wastes where no sewer system exists, as in rural areas or on boats. Bacteria decompose the organic matter into sludge, which is pumped off periodically.

settleable solids: Materials heavy enough to sink to the bottom of waste water.

settling chamber: A series of screens placed in the way of flue gases to slow the stream of air, thus helping gravity to pull particles out of the emission into a collection area.

settling tank: A holding area for waste water, where heavier particles sink to the bottom and can be siphoned off.

sewage: The organic waste and waste water produced by residential and commercial establishments.

sewage lagoon: See lagoon.

sewer: A channel that carries waste water and stormwater runoff from the source to a treatment plant or receiving stream. Sanitary sewers carry household and commercial waste. Storm sewers carry runoff from rain or snow. Combined sewers are used for both purposes.

sewerage: The entire system of sewage collection, treatment, and disposal. Also applies to all effluent carried by sewers.

shield: A wall to protect people from exposure to harmful radiation.

significant deterioration: Pollution from a new source in previously "clean" areas.

silt: Fine particles of soil or rock that can be picked up by air or water and deposited as sediment.

silviculture: Management of forest land for timber. Sometimes contributes to water pollution, as in clear-cutting.

sinking: Controlling oil spills by using an agent to trap the oil. Both sink to the bottom of the body of water and biodegrade there.

skimming: Using a machine to remove oil or scum from the surface of the water.

sludge: The concentration of solids removed from sewage during waste water treatment.

slurry: A watery mixture of insoluble matter that results from some pollution control techniques.

smog: Air pollution associated with oxidants.

smoke: Particles suspended in air after incomplete combustion of materials containing carbon.

SO_x: The chemical symbol for oxides of sulfur.

soft detergents: Cleaning agents that break down in nature.

solar energy: Power collected from sunlight, used most often for heating purposes but occasionally to generate electricity.

soil conditioner: An organic material like humus or compost that helps soil absorb water, build a bacterial community, and distribute nutrients and minerals.

solid waste: Useless, unwanted, or discarded material with insufficient liquid to be free-flowing.

solid waste disposal: The final placement of refuse that cannot be salvaged or recycled.

solid waste management: Supervised handling of waste materials from their source through recovery processes to disposal.

sonic boom: The thunderous noise made when shock waves reach the ground from a jet airplane exceeding the speed of sound.

soot: Carbon dust formed by incomplete combustion.

sorption: The action of soaking up or attracting substances; used in many pollution control processes.

sprawl: Unplanned development of open land.

spoil: Dirt or rock that has been removed from its original location, destroying the composition of the soil in the process, as with strip-mining or dredging.

stabilization: To convert the active organic matter in sludge into inert, harmless material.

stabilization ponds: See lagoon.

stable air: A mass of air that is not moving normally, so that it holds rather than disperses pollutants.

stack: A chimney or smokestack; a vertical pipe that discharges used air.

stack effect: Used air, as in a chimney, that moves upward because it is warmer than the surrounding atmosphere.

stagnation: Lack of motion in a mass of air or water, which tends to hold pollutants.

stationary source: A pollution location that is fixed rather than moving. One point of pollution rather than widespread.

storm sewer: A system that collects and carries rain and snow runoff to a point where it can soak back into the ground-water or flow into surface waters.

stratification: Separating into layers.

strip mining: A process that uses machines to scrape soil or rock away from mineral deposits just under the Earth's surface.

stripcropping: Growing crops in a systematic arrangement of strips or bands which serve as barriers to wind and water erosion.

sulfur dioxide (SO_2): A heavy, pungent, colorless gas formed primarily by the combustion of fossil fuels. This major air pollutant is unhealthy for plants, animals, and people.

sump: A depression or tank that catches liquid runoff for drainage or disposal, like a cesspool.

supersonic transport (SST): A jet airplane that flies above the speed of sound; it may be extremely noisy upon takeoff and landing.

surfactant: A surface active chemical agent, usually made up of phosphates, used in detergents to cause lathering. The phosphates may contribute to water pollution.

surveillance system: A series of monitoring devices designed to determine environmental quality.

suspended solids (SS): Tiny pieces of pollutants floating in sewage that cloud the water and require special treatment to remove.

synergism: A cooperative action of two substances that results in a greater effect than both of the substances could have had acting independently.

systemic pesticide: A chemical that is taken up from the ground or absorbed through the surface and carried through the systems of the organism being protected, making it toxic to pests.

T

tailings: Residue of raw materials or waste separated out during the processing of crops or mineral ores.

teratogenic: Substances that are suspected of causing malformations or serious deviations from the normal type, which can't be inherited, in or on animal embryos or fetuses.

terracing: Dikes built along the contour of agricultural land to hold runoff and sediment, thus reducing erosion.

tertiary treatment: Advanced cleaning of waste water that goes beyond the secondary or biological stage. It removes nutrients such as phosphorus and nitrogen and most suspended solids.

thermal pollution: Discharge of heated water from industrial processes that can affect the life processes of aquatic plants and animals.

threshold dose: The minimum application of a given substance required to produce a measurable effect.

tidal marsh: Low, flat marshlands traversed by interlaced channels and tidal sloughs and subject to tidal inundation; normally, the only vegetation present is salt-tolerant bushes and grasses.

tolerance: The ability of an organism to cope with changes in its environment. Also the safe level of any chemical applied to crops that will be used as food or feed.

topography. The physical features of a surface area including relative elevations and the position of natural and manmade features.

toxic substances: A chemical or mixture that may present an unreasonable risk of injury to health or the environment.

toxicant: A chemical that controls pests by killing rather than repelling them.

toxicity: The degree of danger posed by a substance to animal or plant life.

trickling filter: A biological treatment device: wastewater is trickled over a bed of stones covered with bacterial growth, the bacteria break down the organic wastes in the sewage and produce cleaner water.

troposphere: The portion of the atmosphere between seven and ten miles from the Earth's surface, where clouds form.

turbidimeter: A device that measures the amount of suspended solids in a liquid.

turbidity: Hazy air due to the presence of particles and pollutants; a similar cloudy condition in water due to suspended silt or organic matter.

U

urban runoff: Storm water from city streets, usually carrying litter and organic wastes.

V

vapor: The gaseous phase of substances that are liquid or solid at atmospheric temperature and pressure—such as steam.

vapor plumes: Flue gases that are visible because they contain water droplets.

vaporization: The change of a substance from a liquid to a gas.

variance: Government permission for a delay or exception in the application of a given law, ordinance, or regulation.

vector: An organism, often an insect, that carries disease.

vinyl chloride: A chemical compound used in producing some plastics. Excessive exposure to this substance may cause cancer.

volatile: Any substance that evaporates at a low temperature.

W

waste: Unwanted materials left over from manufacturing processes, refuse from places of human or animal habitation.

waste water: Water carrying dissolved or suspended solids from homes, farms, businesses, and industries.

water pollution: The addition of enough harmful or objectionable material to damage water quality.

water quality criteria: The levels of pollutants that affect use of water for drinking, swimming, raising fish, farming or industrial use.

water quality standard: A management plan that considers, 1) what water will be used for 2) setting levels to protect those uses 3) implementing and enforcing the water treatment plans and 4) protecting existing high quality waters.

watershed: The land area that drains into a stream.

water supply system: The collection, treatment, storage and distribution of potable water from source to consumer.

water table: The level of ground water.

X Y Z

zooplankton: Tiny aquatic animals that fish feed on.

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